A STUDY OF BUSINESS MODELS SUSTAINING THE DEVELOPMENT OF DIGITAL CULTURAL CONTENT

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Note

The views expressed in this report of those of Wall Comminations and, as such, they are not intended to and nor do they necessarily reflect the views of the Department of Canadian Heritage.

Wall Communications Inc. *is an economics consulting firm specializing in telecommunications, broadcasting, film and television production, new media, copyright and intellectual property and competition policy.*

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Executive Summary

This study has been prepared by Wall Communications for the Department of Canadian Heritage. The purpose of the study is to identify and assess current and potential future business models relating to the creation and accessibility of digital Canadian cultural content. The study focusses on Canadian digital cultural content made available by federal agencies and crown corporations as well as not-for-profit cultural and heritage organizations.

In conducting the study, Wall Communications relied on data and information from two primary sources. First, a detailed survey was carried out to collect information on existing digital products developed by federal agencies and non-profit cultural and heritage organizations. The survey also collected information on the business models currently used to fund digital products as well as expectations with respect to the development and funding of existing and new digital products in the coming years. Seven organizations participated in the survey:

- the National Library of Canada (NLC),
- the National Archives of Canada (NAC),
- the Canadian Museum of Civilization Corporation (CMCC),
- the Canadian Broadcasting Corporation (CBC),
- the National Film Board (NFB),
- Canadian Institute for Historical Microreproductions (CIHM) and
- Historica Foundation of Canada (Historica).

The second key source of information used in the study was obtained from interviews conducted with recognized experts in the fields of cultural content digitization and business models for the delivery of content over the Internet. The

experts interviewed in this respect were recommended to Wall Communications by Canadian Heritage.

The seven surveyed organizations vary considerably in terms of their size and mandate. Similarly, the nature, volume and scope of the cultural content held within their respective collections vary significantly and, consequently, so do their respective digital cultural products. **In the relatively brief period (starting in 1995 or so) since most of these organizations first began to develop online digital products, a significant body and range of digital cultural content has been created by these organizations. While the main target audience for the content has been the general public, much of the content is geared towards Canadian students, teachers and researchers.**

In terms of current annual expenditures, the total year-end 2001 budget allocated for digital product development and maintenance for the seven surveyed organizations, in aggregate, is approximately $26 million. This averages to roughly $3.7 million per organization. Excluding the CBC, by far the largest organization in the group, the average drops to between $2.0 and $2.5 million per organization.

The number of full-time-equivalent (FTE) employees involved with digital product development and maintenance varies considerably across the organizations. For all survey respondents combined, there are approximately 254 internal FTE employees involved in these activities, either directly or indirectly. This amounts to roughly 36 FTE employees per organization. The average, excluding the CBC, drops to between 15 and 20 FTE employees.

On average, roughly one third of internal staff involved with digital product development and maintenance is dedicated to the digitization of content. The majority of the remaining staff are involved in content management (e.g., product development, content selection and administration) and technical operations (e.g.,

website design, development and maintenance). Finally, a very limited quantity of resources are dedicated to copyright clearance matters, and resources devoted to the marketing and promotion are negligible.

The surveyed organizations reported that they currently rely on a variety of sources of funding for the development and maintenance of their respective digital products. Reported current sources of funding include the following:

i) federal government funding - operations and/or project funding,
ii) partnership arrangements - cost sharing and/or content access,
iii) corporate/private sponsorship funding,
iv) product sales and licence fees,
v) access/subscription fees, and/or
vi) provincial government funding.

For all but one of the surveyed organizations, the federal government currently represents the most important source of funding by far. In this respect, it should be also noted that while partnership arrangements offer an alternative source of funding, the partners involved are frequently other federal government departments and/or agencies. Only CIHM and CBC have a user fee based funding approaches in place at this time, although the NFB is planning to implement as user pay model in the near future.

The surveyed organizations indicated that the top challenges that they have faced to date in developing and maintaining digital products include:

i) funding,
ii) building capacity (e.g., developing necessary in-house expertise and technical infrastructure),
iii) managing standards,

iv) copyright clearance and

v) meeting the needs of target audiences.

Of these challenges, funding was the most consistently and frequently cited. Although, in general, most of the surveyed organizations reported that they have been able to meet either in part or reasonably well their digital product develop requirements to date.

In terms of medium- to long-term requirements, most of the surveyed organizations were unable to provide a clear picture of their future digital product plans and priorities or, as a result, future funding requirements. Most have an enormous volume of cultural content yet to be digitized (especially in the cases of the NLC, NAC and CBC) which could takes many years to fully digitize. However, to date, many of the organizations have only conducted limited assessments of both the success of existing digital products and the likely demand for new and expanded digital products. **In Wall Communications' view, any new digital products that are to be developed should meet actual user needs in a user-friendly format. Moreover, there should be a complementary strategy to attract and grow an audience for the digital product, and raise the "visibility" of the product among potential users. However, it is not clear from the survey responses whether there is the necessary comprehensive and rigorous user demand analysis being conducted in support of new digital product development.**

That being said, we consider that a continuation of existing funding levels -- derived from all existing sources -- in the near- to intermediate-term appears to be the minimum level of funding necessary to build on the achievements made to date. This would allow further progress to be achieved in terms of the scale, depth and features of each organization's collection of digital cultural products. However, if current funding levels are to be maintained, cultural and heritage institutions would likely continue to require federal government funding at or near existing

levels in the near term. It would clearly be very difficult for the organizations to quickly adjust to a significant reduction in federal government funding or, even more so, to a complete elimination of that funding. Any significant changes in business model strategy would take some time to implement and, more importantly, there would be no guarantee that any new approaches adopted would necessarily be successful.

It is also important to recognize that government funding provided to date has done more than simply help cover the costs of specific digital cultural content projects. It has allowed the organizations to build capacity, technical infrastructure and expertise to continue the development of similar digital products in the future. The nature of the operations of the surveyed organizations is rapidly changing as a result of technological developments, as is the case in virtually all sectors of the economy today. Ongoing digitization requirements and the need to increasingly deal with "born-digital" cultural products will transform current digital product project activities into standard day-to-day operations. The investments made to date should provide cultural and heritage organizations with greater capacity to continue with future digitization activities in a more efficient manner.

Nevertheless, in the near- to medium-term, cultural and heritage institutions will continue to be dependent on federal government funding in order to continue with the development of digital cultural products and maintain their existing products. **For further government funding to be granted, however, there should be clear evidence provided demonstrating the existence of user demand for any proposed new digital cultural product projects. Of course, we recognize that this factor would not form the sole basis for any assessment for any such funding requests or digital content funding programs.**

There are several alternative business models that could be potentially adopted over the medium to longer term that could reduce and possibly even eliminate (in some cases) the need for ongoing federal government funding of the development and maintenance of digital products in organizations such as those surveyed. The approaches considered included those currently used by commercial online content providers; i.e.,

i) advertizing and/or sponsorships revenues,
ii) user fees (e.g., subscription- or transactions-based usage charges),
iii) product/services sales (e.g., from related products and/or services),
iv) cross-promotion (e.g., of traditional media or commercial operations), and/or
v) digital content licensing.

These approaches are not unique to commercial online service providers. There is considerable overlap between this list and the approaches currently followed by the organizations surveyed for this study. However, a number of these commercial market approaches would have limited, if any, applicability in the case of cultural and heritage intuitions (with the exception of organizations such as the CBC) -- e.g., advertizing, product/service sales or cross promotions.

On the other hand, while no single model would necessarily be effective in all cases, there are several promising approaches that, in combination with existing funding models, could provide cultural and heritage institutions with potentially sustainable alternative sources of funding for digital products. These approaches include increased reliance on (i) partnerships aimed at sharing costs and/or gaining access to content, (ii) corporate and/or private sector sponsorships, (iii) user fees and/or (iv) third party licensing fees. The two latter approaches likely hold the most promise in terms of longer term sustainability.

However, with respect to a user pay approach, it is questionable as to whether user fees are appropriate in the case of certain cultural and heritage institutions such as the NLC and NAC. It appears that charging the public for access to either of these two institution's general interest digital collections would be contrary to their respective mandates; although, it may not be inappropriate to charge for access to digital content developed specifically for niche market applications. In addition, licensing digital cultural content to third party content aggregators could raise similar concerns, to the extent that digital cultural content previously provided free of charge was shifted to a third-party content provider on a user pay basis.

While, the user pay and content licensing models could be effective and sustainable business model approaches for many of the organizations examined in this study, we would not recommend that the government necessarily favour these approaches over others. Just as the current funding approaches differ significantly from one organization to another, likely so would the business model approaches adopted by cultural and heritage organizations in the coming years.

For cultural and heritage institutions to successfully deliver online digital cultural content in the future, with significantly less reliance on federal government funding, they would need to adopt a more commercial approach to creating digital products and marketing those products. This implies that these organizations may need to re-focus their digital products to satisfy more narrowly targeted market segments or user groups. Consequently, to the extent that government funding is scaled back, government's ability to influence the type of digital cultural content that is made available to Canadians would ultimately diminish. Whether or not and under what circumstances this trade-off would be acceptable to the government would require careful consideration.

1.0 Introduction

This study has been prepared by Wall Communications Inc. for the Department of Canadian Heritage. The purpose of the study is to identify and assess current and potential future business models relating to the creation and accessibility of digital Canadian cultural content. The study focusses on Canadian digital cultural content made available by federal cultural and heritage agencies and crown corporations as well as Canadian not-for-profit cultural and heritage organizations. However, experience with the development of similar digital content by commercial online service providers is also taken into consideration.

We should note at the outset that while this study deals with "digital cultural content" or "digital cultural products", these terms are generally not well defined in practice. As others have noted,[1] these terms can cover a very broad range of materials and are generally considered to include digital multimedia surrogates for existing cultural artifacts of the kind typically contained in the collections of museums, libraries and archives, along with associated descriptive and contextual information. In addition, the term also applies to "born digital" materials of cultural significance that have been created more recently and, for instance, been made available over the Internet. In any case, ambiguities that can arise over the definition of digital cultural content do not affect this study, since we focus strictly on digital cultural content contained in the collections held by libraries, archives, museums and similar organizations.

There is a diverse range of digital cultural content being produced today and, similarly, there is a diverse range of objectives motivating the development of and provision of access to this content. Not surprisingly, the range of current and

potential business models also differs for the various content producers being considered. In this respect, the particularities of the business models relevant to content producers examined in this study are taken into account and reflected in the study.

In conducting this study, Wall Communications developed and relied on data and information from two primary sources. First, a detailed survey was carried out to collect data on current digital product developments and future expectations, as well as the nature of current business models relied on by various federal agencies and non-profit cultural and heritage organizations. In total, seven organizations participated in the survey, including:

- the National Library of Canada (NLC),
- the National Archives of Canada (NAC),
- the Canadian Museum of Civilization Corporation (CMCC),
- the Canadian Broadcasting Corporation (CBC),
- the National Film Board (NFB),
- Canadian Institute for Historical Microreproductions (CIHM) and
- Historica Foundation of Canada (Historica).

The second key source of information used in the study comes from interviews with recognized experts in the fields of cultural content digitization and, more generally, recognized industry experts on current and emerging business models for the delivery of content over the Internet.[2]

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1 For instance, see Tony Gill and Paul Miller, "Re-inventing the Wheel? Standards, Interoperability and Digital Cultural Content", D-Lib Magazine, January 2002, available at: http://www.dlib.org/dlib/january02/gill/01gill.html.

2 A list of experts to be interviewed for this study was provided to Wall Communications by the Department of Canadian Heritage.

Based on the data and information collected for the study, Wall Communications focused on the following key questions and issues relating the current state of development of cultural digital products and their ongoing sustainability:

i) What are the funding needs to convert existing content to a proper and user-friendly on-line format?

ii) What is the current funding structure for online content? What are the anticipated future funding needs?

iii) What will the future funding structure look like, more particularly, what non-governmental sources of revenues are anticipated in the medium and long term?

iv) At what level does government need to be involved in the near term, the medium-term and the long-term?

v) What specific challenges could arise if government funding was no longer available or only available to a lesser extent?

vi) Will digitization create new revenue-generation opportunities for heritage institutions and other content producers?

vii) To what extent would a user-pay environment for cultural and heritage content be consistent with other responsibilities and objectives of the government (and are there differences in this respect between the different types of content providers)?

viii) What business models should government favour or support to meet its objective of promoting accessibility of content for Canadians without short-circuiting the content producers' markets?

The balance of this study is divided into two main sections. The following section provides a detailed summary of the survey results for the seven respondent organizations. It includes an overview of the organizations' current digital products, their associated budget, resource and funding levels, key current challenges they face, along with forward looking plans and funding requirements. The section also provides a summary and analysis of the survey results, which addresses several of the above-noted questions and issues. The next section reviews the various business models that the organizations currently rely on, and compares them to alternative models found in commercial, private-sector digital product applications. It also examines the feasibility of alternative business models for cultural and heritage institutions and, in doing so, addresses the balance of the above-noted questions and issues.

2.0 Current Status of Digital Cultural Content Activities

2.1 Survey of Federal Agencies and Not-for-profit Cultural Organizations

In order to collect information on the current status of activities and plans related to the provision of access to digital cultural content, Wall Communications conducted a survey of seven federal agencies and not-for-profit organizations. As noted, these organizations included the NLC, NAC, CMCC, CBC, NFB, CIHM and Historica.

The questionnaire, which is provided in full in Appendix 1, was divided into three parts. The first part involved a series of questions dealing with each organization's current range of digital products. These questions covered the objectives of each organization's products, their key features, the year they were first introduced, their

size and rate of growth over time, changes in key features over time, the shelf-life of the content contained in the products and the audience using the products.

The second part of the questionnaire dealt with existing budget, resource and funding requirements. These questions sought information on the size of each organization's current digital products budget, in dollar terms and employees, including details regarding the portion of the budget allocated to the digitization of content,[3] copyright clearance and marketing and promotion. This section also sought views on the adequacy of existing funding levels, along with information on the sources of existing funding and, where applicable, revenues. As well, the organizations were asked to specify the main challenges they have faced to date in terms of developing and maintaining their current digital products.

The third part of the questionnaire dealt with each organization's future plans, expected challenges and funding requirements. These questions were intended to gather information on the demand for additional content, the size and scope of content to be digitized, along with the magnitude of the required funding and time frame for implementation. In addition, each organization was asked for their views on the potential for efficiency savings from the creation of digital products and revenue generating potential for their respective digital products in the coming years. Lastly, each organization was asked for their views on the key challenges they expect to face in terms of sustaining their existing digital products as well as further developing these products in the future.

2.2 Digital Product Overview

The organizations surveyed for this study vary considerably in terms of their size and mandate. Similarly, the nature, volume and scope of the cultural content held

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[3] The digitization of content is the process of converting text, sound, images, video and other content to a digitized format, including activities relating to the gathering, description and management of the digitized content.

within their respective collections vary significantly and, consequently, so do their respective digital products. The following provides a summary of each organization's digital products as background to the balance of the study.

2.2.1 *The National Library of Canada (NLC)*

Through its main website,[4] the NLC provides access to an extensive range of digital cultural content, including digital products such as the "*Digital Library of Canada*", which features specialized content dealing with music, literature and history. Other major digital products available through the website include:

- *AMICUS*, a national online Library catalogue research tool that provides access to a range of born-digital and digitized Canadian publications held in over 1,300 Canadian libraries including the NLC,
- *Images Canada*, a metadata-based access gateway to digitized image collections in Canadian cultural institutions, and
- *Virtual Gramophone*, an online database including an extensive range of Canadian sound recordings.

The NLC launched its first online exhibit in 1995. According to the NLC, traffic volume on its website is now in the range of 17 million "hits" per month.

The primary objective underlying the development of the NLC's digital products is to provide universal access to Canadian cultural information (held not only by the Library, but other heritage institutions as well) free of charge to support e-learning by Canadians of all ages in both official languages. In addition, the NLC has steadily worked along with others to construct a coherent, large-scale and long-term Canadian digital library.

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[4] http://www.nlc-bnc.ca/.

In terms of key features, NLC's digital products are typically searchable collections (i.e., databases including audio, text and image files) together with the metadata that describes them. Full-text search capability is usually provided (e.g., in digital content databases such as *Encyclopedia of Music in Canada* and the *Canadian Poetry Archive*).[5] Other products are intended as educational resources, with the digitized original material illustrating a narrative text (e.g., *Pathfinders and Passageways: The Exploration of Canada*)[6] and include an online exhibition of selected objects, usually accompanied with captions, authoritative essays and biographies (e.g., *Guardians of the North*).[7] As well, many products are research guides or access tools, which inform users of content that exists at other websites or sources (e.g., *Canadian Information by Subject*, a directory of 6000 quality Canadian websites).[8]

According to the NLC's estimates, it has added some 200 gigabytes of converted or created content to its line of digital products over the last year, excluding born-digital Canadian cultural content that it acquires and archives routinely. The NLC expects this phenomenal rate of growth in digital content to increase in the future.

The NLC has also added a variety of new features and capabilities to its digital products over time. These include design enhancements, search capability enhancements, browse and sort features, additional content and additional file formats. For instance, while *Virtual Gramophone* initially contained only RealAudio files, it now contains MP3 files as well. The NLC has also added support materials for teachers. Furthermore, the NLC increased standardization across its various digital products in terms of site features, architecture, design and navigation.

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5 See http://nlc-bnc.ca/4/17/index-e.html and http://nlc-bnc.ca/canvers/ehome.htm, respectively.

6 See http://nlc-bnc.ca/2/24/index-e.html.

7 See http://nlc-bnc.ca/3/3/index.html.

8 See http://nlc-bnc.ca/caninfo/ecaninfo.htm.

While the NLC's digital products are targeted to the general public, given their nature, the content is of particular interest to students, teachers, researchers (e.g., graduate students and scholars) as well as librarians. In addition, some of the NLC's digital products are also of specific interest to genealogists.

In terms of the life span of its digital products, the NLC noted that it has discontinued access to very few products to date. More typically, it updates and expends content provided in its digital products, and also implements information architecture updates. Some early digital products have been superseded by completely new, expanded products and, as a result, the original version is only available through the electronic collection/archive (e.g., *AMICUS*).

In the NLC's view, if not maintained, digital products can become obsolescent within 3 to 5 years. Sustained funding to maintain currency of content, quality of access, and vitality of design is required to avoid this fate. At the same time, the NLC has indicated that it has been cautious in initiating new online digital products that need constant growth and maintenance given ongoing funding uncertainties.

More importantly, as the NLC pointed out, its mandate is to preserve and provide access to the cultural content held within its collections, including newly created digitized content, so that such materials can be archived for posterity. As a result, in the NLC's view, the digital cultural products it develops generally have a long-term, if not, permanent shelf-live.

2.2.2 The National Archives of Canada (NAC)

The NAC also provides a broad range of Canadian digital cultural content through its website.[9] These include:

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[9] See http://www.archives.ca/

- A range of "virtual exhibits" dealing with Canadian cultural subject matter entitled: *Living Memory, People, Places, Government, Aboriginal Peoples, War,* and *Postal Archives,*
- *ArchiviaNet,* which is a research and consultation tool that provides access to a variety of information resources related to the NAC's archival holdings,[10] and
- A research tool providing users with access to a variety of Canadian genealogical information sources.[11]

While the NAC launched its website in 1996, it first made digital products available in CD-ROM format in 1992. Through its website, the NAC has been offering "virtual exhibitions" of increasing complexity over the course of the last four years. The virtual exhibitions provide specialized cultural content based on the NAC's collections and are intended to appeal to a broad audience interested in Canadian experience and history.

ArchiviaNet, which was launched more recently, is intended to make the NAC's most popular holdings accessible to students and researchers. While the NAC's digital products are targeted to the general public, the most common users are researchers, students, government and genealogists. In fact, according to the NAC, genealogists account for the heaviest use of the NAC's website.

The NAC's digital products incorporate a variety of media, including text, images, audio, video, and provide sophisticated search capabilities. The growth in content available in the NAC's digital products has been "geometric" over the last couple of years, and this rate of growth is expected to continue for the foreseeable future.

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10 See http://www.archives.ca/02/0201_e.html.
11 See http://www.archives.ca/02/020202_e.html.

Like the NLC, the NAC's digital products are intended to have a long-term life span (e.g., a minimum 5 to 10 years). In any case, many of the NAC's digital products have only recently been created, consequently, the question of their discontinuance has not arisen. Nor has the NAC established any firm policy relating to the discontinuance of specific digital products.

2.2.3 *The Canadian Museum of Civilization Corporation (CMCC)*

The CMCC has developed a number of digital products that can be accessed online or purchased on CD-ROM. These include:

- The CMCC's website, *Civilization.ca*, which includes public access to the Museum's collections (including 130,000 records with 32,000 images attached) and to the library and archives,[12]
- *Virtual Museum of New France*, a virtual museum exhibit dedicated to the history of New France,[13]
- *Electronic Educational Oracles*, covering a series of cultural topics such as Canadian history, First Peoples, cultures, archaeology, and arts and crafts, and
- CD-ROMs, including *Inuit*, *People of the Cold*, *Family Treasures*, *Stampville*, *Pocket Museum*, *A History of Native People of Canada*, *Totem Poles*, and *Canada's Visual History*.

The CMCC's website was launched 1994, and a major re-design of the website was completed last year. The *Virtual Museum of New France* website was launched in 1997 and the *Educational Oracles* series was launched in 1999. The CMCC began the development of its CD-ROM products earlier in the 1990s.

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12 See: http://www.civilization.ca.
13 See: http://www.vmnf.civilization.ca.

There are several objectives motivating the development of the CMCC's digital products. They serve to promote the CMCC's museums,[14] by providing information to encourage and facilitate visitations and the use of CMCC's museum programs and services. They also help fulfil the CMCC's mandate to communicate knowledge of Canadian heritage to the general public and specialized audiences. In addition, they offer the potential to generate additional revenue for the institution.

The CMCC's digital products contain a wide range of information about the CMCC's museums, their attractions, facilities, services and events. They provide knowledge content in various forms (e.g., virtual exhibitions, scholarly articles, bibliographies and games), search engine and other navigation tools, and interfaces to databases (e.g., artifact collection, library/archives collection, retail products). Content elements include text in various forms, images, audiovisual and searchable databases.

Traffic to the CMCC's main website has grown enormously since its launch in 1996, increasing from 0.7 million to roughly 15.5 million "page impressions" per year last year. Content on the website has grown rapidly as well, increasing from under 1000 screens of information to over 30,000 screens today (not including the hundreds of thousands of records in the various databases).

The initial website was based on simple, static HTML. Additions since that time have included search engine capabilities, searchable databases, online shopping, audio and video clips, streaming video (including live Webcast), QuickTime VR, dynamically-generated pages (ASP) and interactive games (e.g., utilizing Flash media).

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[14] The CMCC is responsible for the management of the Canadian Museum of Civilization, Canadian War Museum, Canadian Postal Museum and Canadian Children's Museum.

In terms of audience, roughly 80% of the CMCC's main website is used by researchers, students and teachers. The remainder is primarily general public typically pre-planning visits. Following the 2001 re-launch, new special sections and features of the site are now targeted at children, scholars, educators, and the media.

The CMCC considers that the cultural content in its digital products has an indefinite shelf-life (e.g., almost nothing was discarded in its 2001 website re-launch). However, website design and layout require occasional updates as styles and technology change. Some features of the CMCC's website may have limited life spans, depending on the life span of associated offline features.

2.2.4 The Canadian Broadcasting Corporation (CBC)

The CBC's website primarily serves as a portal for its entire collection of English and French-language radio and television programming.[15] As well, the CBC has several specialized digital products which are accessible through its website. These include:

- *Canada: A People's History*, based on the recent television series of the same name,[16]
- *CBC Radio3* and *Bande à Part FM*, which provide windows to new musical alternate styles, including access to pre-recorded music as well as live performances,[17]
- *Universia*, which makes French-language radio archives available to Canadian and some foreign universities on a subscription fee basis (the

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15 See: http://www.cbc.ca/ and http://www.radio-canada.ca/.
16 See: http://history.cbc.ca/.
17 See: http://www.cbcradio3.com/index.html. and http://bandeapart.fm/bandeapart/final/, respectively.

product currently contains some 1000 radio segments or 120 hours of radio programming in total),[18] and

- *Silence, on Court!*, which serves as a window for young independent French-language filmmakers (launched late 2001).[19]

The CBC's website was launched in 1995. The overriding objective of the CBC's website and other related digital products is to expand the availability of the CBC's current program content through alternative technological platforms as well as to cross-promote its radio and television programming. In this sense, the digital products serve to prolong the shelf-life of the CBC's existing radio and TV programming. In addition, the digital products allow customized, on-demand access to content (although this is generally limited to recently aired radio programming at this time).

The English-language CBC website contains roughly 300,000 web pages, whereas the French-language Radio-Canada (SRC) website contains 200,000. The content available on the websites covers a range of formats, including text, images, audio and video. In addition to live streaming-audio radio program feeds, the CBC also makes available some past radio programs, in whole or part, through its website. The website also contains news and information, short amateur movies and content for children. The CBC has also recently provided national and regional news and information content for mobile phone users.

The CBC is currently developing a new digital product intended to create a unique, bilingual website where Canadians can relive major events in Canada's history and, in doing so, view audio-visual material on prominent figures Canadians of the last century.[20]

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18 See: http://www.universia.ca.

19 See: http://silenceoncourt.tv/.

20 This project is being funded in part by Heritage Canada through the Canadian Culture Online Program.

While the volume of content available on the CBC's website and through its associated digital products has grown significantly since inception, the CBC was unable to provide any quantitative measures of the rate of growth. The growth in traffic to the CBC's website has been phenomenal however, generating some 15 million page views per week for the CBC and Radio-Canada websites combined, making them the top news websites used by Canadians in their respective languages.

The CBC's digital content is targeted to the general public (covering all ages) but, as noted, some digital products are specifically aimed at students and researchers.

Given the CBC's digital products depend largely on its radio and television programming, the shelf life for these products can vary significantly. News and current affairs related information is refreshed constantly, with archived information rarely going back more than a month or so given limitations in storage capacity. Similarly, information relating to specific radio or television programming is also regularly updated. Only some of the CBC's digital content, as in the case of *Canada: A People's History, Silence, on Court!* and *Universia*, have increased archival dimensions to their respective content. Consequently, the CBC's digital products are significantly different in nature and purpose relative to the other organizations considered in this study.

2.2.5 *The National Film Board (NFB)*

The NFB's website serves to promote its library of over 10,000 films and, at the same time, provide an alternative means to access information about the films and increasingly an alternative means to view the films.[21]

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[21] See http://www.onf.ca/.

The NFB's website was launched in 1995. It currently contains some 130,000 pages, 3,000 excerpts (of two minutes or less) of NFB films, with more being added constantly. There are also over 40,000 NFB film-related photos, "image grabs" and other objects (transcriptions, pedagogical guides and interviews) available from the NFB's online catalogue. The NFB reported that traffic on its website has reached some 2.5 million visits and 27 million page impressions per year.

In addition, roughly 1,000 full-length films are currently available to Canadian universities and some other schools on a no-charge subscription basis[22] through the NFB's *CinéRoute* system, which is carried over the broadband research-community's dedicated CA Net3 network. *CinéRoute* is currently in the testing phase of its development.

It should be noted that since 1996, the NFB's entire film production chain has been digital, and only a very few projects are now captured on film.[23] Since 1995, the NFB has focussed on increasing accessibility to its film collection (by digitizing films), researching streaming solutions, creating an integrated asset management system (i.e., an electronic rights database), and preserving its film collection by using digital technology to improve the image quality of films affected by time and as a means for medium term archiving. The NFB is also actively involved in research and development of new quality standards for the transfer, management and delivery of digital images.

The NFB's website provides access to a fully catalogued and indexed dynamic database, together with high level of search capacity. *CinéRoute* provides online

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22 Note that while the NFB does not currently charge for *CinéRoute* once the trial period concludes, it is planning to introduce a micro-payment system for use of the available films. The *CinéRoute* trial also involves a system to monitor usage, which will allow for the distribution of future revenues to the appropriate rights holder and allows the quality of delivery to be monitored.

23 Note that for the purpose of this study, the budget for new films produced by the NFB in digital format have not been considered as part of its digital product budget.

streaming video access in MPEG 1 format to full-length films at 1600 kpbs to linked universities and schools (soon to be offered in MPEG 4 format linked to the CA Net3 network). *CinéRoute* provides full screen high-resolution viewing. The system is tied to an electronic rights management database, which includes related licensing agreements with rights holders as part of the testing phase the system (which will eventually allow for the distribution of revenues collected to the appropriate rights holders).

The NFB's website has grown considerably in size since it was first launched. The number of films and film excerpts available on the website has grown at an annual rate of 50%. Growth in other objects such as photos and transcripts, which require less engineering, has been exponential. As well, advances have been made in terms of improved quality of video streams (i.e., with plans to move to in MPEG 4 format), the ability to track delivery, watermarking and electronic rights management. Research is also being undertaken in the areas of e-commerce possibilities, encryption, utilization of web services for metadata distribution and voice recognition.

While the target audience for the NFB's film collection is the general public (including children), its digital products have primary appeal for the education sector, film community and cultural audiences.

The NFB considers the content in its digital products to be permanent in nature, although it may be necessary to re-digitize objects more than once to improve the quality of the output. On the other hand, there are some new digital productions being developed for short-term use such as special content on the NFB's online site for children and other promotional items that are created solely for film launches. Moreover, since its launch, content on the NFB's website has refreshed and updated.

2.2.6 *The Canadian Institute for Historical Microreproductions (CIHM)*

In contrast to the preceding federal government agencies and crown corporations, CIHM is an independent, not-for-profit organization which was initially established in 1978 to locate early printed Canadian materials (e.g., books, annuals, and periodicals), to preserve them on microfilm, and to make the resulting collections available to libraries and archives in Canada and abroad. More recently, CIHM has been involved in digitizing this same information.

CIHM currently makes available the following digital products over the Internet: [24]

- *ECO (Early Canadiana Online)*, which includes digitized documents of early Canadiana on topics, such as literature, history, law, and religion and includes English, French and some native language documents;[25]
- *Canada in the Making*, which is effectively a subset of *ECO*, and consists of a collection of early Canadian government publications to 1900, in both English and French, including acts, bills, debates, sessional papers, court rules, commissions of inquiry and committee reports; and
- Web educational resources intended to enhance the use of CIHM's collections particularly by teachers and students, including lesson plans,[26] and features on *Exploration, the Fur Trade, Hudson's Bay Company* and *Canada in the Making*.[27]

CIHM's digital products were launched in 1999. CIHM's primary objectives for its digital products, consistent with its existing mandate, are to locate, preserve, catalogue and digitize early Canadiana.

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24 See the following website for information on CIHM: http://www.nlc-bnc.ca/cihm/.
25 See: http://www.canadiana.org.
26 See: www.canadiana.org/eco/english/tablecontent.htm.
27 See: http://www.canadiana.org/hbc/.

ECO currently provides access to close to 1 million pages of Canada's printed heritage materials. By 2004, an additional 1.25 million pages are to be added to the digital library, more than doubling the size of the collection.
Documents are scanned into the database using Optical Character Recognition, which enables full-text search capabilities. Moreover, enhanced print capabilities are being added to the products to allow users to print out a range of pages at one time.

In terms of traffic, ECO usage has been steadily climbing and, according to CIHM, reached 2 million hits per month as of March 2002. The average is for the most recently available six month period 1.7 million hits per month (about 14,000 pages are viewed on a daily basis).

CIHM charges an annual subscription fee to libraries and similar institutions for access to the *ECO* database. The *fees* parallel CIHM's existing microfiche sales arrangements. Member libraries and institutions pay a yearly fee for access to a members-only part of the database, in much the same way they had been paying annually for microfiche. However, it is important to note that the general public is able to access the entire database free of charge through any of the subscribing member libraries or institutions.

The main users of CIHM's digital products are scholars and researchers. As the database has become more widely known, a broader range of users has begun to access the database, particularly those interested in genealogy and history. According to CIHM's most recent user survey (conducted in 2000), about half of the online visits to its website were made by the general public. With last fall's launch of the educational features, CIHM has found that more teachers and students are now accessing the website.[28]

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[28] CIHM plans to conduct two surveys this year, the first to assess usage of the educational websites and the second to update its general user survey of the database.

In terms of the shelf-life of its digital products, CIHM indicated that it is not discontinuing any of its content, nor does it intend to do so in the future. CIHM's digital products or databases are research collections of historical documents and as such will continue to grow indefinitely, pending demand and funding.

2.2.7 The Historica Foundation of Canada (Historica)

Historica is a charitable foundation dedicated to increasing awareness and understanding of Canadian history. Through its website,[29] Historica provides a range of Canadian historical information and related resources. Its two main features include:

- The online version of the *Canadian Encyclopedia*,[30] and
- The Historica Foundation website, *Histori.ca*, which provides resources for teachers, access to features such as *Canadian Heritage Minutes*, *Youth Links* and *Heritage Fairs*.

The Historica website was launched in 2000, relatively recently in comparisons to the other online products described above. Historica's online products are intended to provide teachers, students and parents with access to a broad range of authoritative learning materials relating to Canadian history. The online version of the *Canadian Encyclopedia* was launched in October 2001, with the objective of providing free public access to the key Canadian reference work. McCelland & Stewart, the former publisher of the Canadian Encyclopedia, donated the encyclopedia to Historica who is now responsible for the publication, including the online and CD-ROM versions of the encyclopedia.

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29 See: www.histori.ca.
30 See: http://thecanadianencyclopedia.com/.

Historica's website offers a variety of digital content, including lesson plans and digitized version of the *Canadian Heritage Minutes* series in a searchable, easy to navigate site (the series includes both text-based and video-based content). The *Canadian Encyclopedia* website currently contains some 11 million words in 25,000 articles in both official languages, along with several thousand pieces of related multimedia. In terms of content growth, the Canadian Encyclopedia is updated continuously and the main English database has increased in size from 3 to 5 million words between 1991 and 2000. Content available on Historica's website is being expanded constantly.

Since being launched only a few months ago, the online version of the encyclopedia already attracts some 100,000 unique visitors per month.

As noted, the main user groups of Historica' digital products are the general public, although with an educational focus. The Historica website is principally intended for students and teachers.

Given the nature of Historica's digital products, all of the content is considered permanent in nature.

2.2.8 Summary of Current Digital Products

A summary of the digital products currently made available by the seven surveyed organizations is provided in Table 2.1 on the following page.

Table 2.1
Summary of Current Digital Products and Related Information

Organization	Primary Digital Products	Online Launch	Key Objectives	Key Target Audience	Content Vol/Growth	Shelf-Life	Traffic	Usage Charges
National Library of Canada (NLC)	*Digital Library of Canada*, and many other online exhibits	1995	Universal access to collections	Teachers Students Researchers	200GB added in the last year	Long-term/ permanent	Main site: 17M hits/ month	None
National Archives of Canada (NAC)	*ArchiviaNet* and a range of "virtual exhibits"	1996	Access to collections	Researchers Students Genealogists Government	Geometric growth	Long-term/ 5-10 yr. min.	NA	None
Canadian Museum of Civilization (CMCC)	*Civilization.ca* website and other "virtual exhibits"	1994	Promotion, Access to collections	Researchers Students Teachers	30K screens, Rapid growth	Indefinite	15.5M page impressions/ year	None
Canadian Broadcasting Corporation (CBC)	CBC/SRC websites and other exhibits and features	1995	Build on program content, Promotion	Public Students Researchers	500K web pages on main site	Short to longer term given nature of content	Main site: 15M hits/ week	Yes *Universia*
National Film Board (NFB)	NFB website, and *CineRoute* (trial phase)	1995	Promotion, Access to film library Build on program content	Public Schools Universities Film community	1K films 3K film clips 40K photos Steady growth	Mostly permanent (ie, digitized films)	2.5M visits & 27M page impressions/ year	No Planned for *CineRoute*
Canadian Institute for Historical Micro-reproductions (CIHM)	*Early Canadiana Online*, and other educational resources	1999	Locate Preserve Catalogue Access	Scholars Researchers Genealogists	1M pages	Indefinite	2M hits/ month	Yes *ECO*
Historica Foundation	*Histori.ca* website, and online *Canadian Encyclopedia*	2000	Provide access to learning materials	Teachers Students Public	11M words 25K articles, Steady growth	Permanent	11K unique visitors/ month	None

2.3 Current Budget, Resources and Funding

While all of the organizations surveyed for this study provided their best estimates of their respective budgets for the development and ongoing maintenance of digital products, several cautioned that isolating all expenditures relating to digital product projects and related activities is far from straightforward. This is especially the case in the larger organizations surveyed, given the often decentralized nature of their operations. Whereas specific digital product projects generally have dedicated budgets, other activities that either directly or indirectly contribute to the development and ongoing maintenance of digital products can sometimes be included within the budgets for other departments, functions or activities. Therefore, it is likely that the digital product-related budget estimates provided by some survey respondents may be somewhat understated.

Bearing this caveat in mind, only two of the seven organizations indicated that their current budgets allow them to "reasonably" meet their requirements in this respect. Three indicated that their requirements were only "met in part" and another indicated that its requirements were "hardly met at all". The remaining organization explained that its available budget does not adequately allow for the development of the technical infrastructure to support its digital products and that its financial requirements for the ongoing maintenance of its digital products were only met in part. This same organization did note, however, that its requirements had been reasonably met for initial digital product development.

Overall, therefore, most of the organizations consider the current level of funding for their digital products to be inadequate to one degree or another. Table 2.2 summarizes the respondents' assessment of the adequacy of their current digital product budget levels.

Table 2.2
Adequacy of Current Digital Product Budget Levels

Degree of Adequacy	*Distribution*
Requirements hardly met at all	19%
Requirements met in part	48%
Requirements met reasonably well	33%
Requirements fully met	0%

Mandate and size differences between the organizations make comparisons of their respective digital product budget levels difficult. CIHM and Historica are very small in scale relative to the others, while the CBC is by far the largest of the group. Bearing these size differences in mind, the total budget allocated for digital product development and maintenance for the seven organizations, in aggregate, is roughly $26 million for the for year-end 2001. This averages to roughly $3.7 million per organization. Excluding the CBC, the average drops to between $2.0 and $2.5 million per organization. Table 2.3 provides a summary of the reported digital product budgets for year-end 2001.

Table 2.3
Year-end 2001 Digital Product Budgets

Budget Range	*Distribution*
Under $1.5 million	3 of 7
Between $1.5 and $5 million	3 of 7
Over $5 million	1 of 7
Average Budget	**$3.7 million**

With the exception of CIHM and Historica, the digital product budgets for all organizations has grown substantially over the last three years (e.g., increasing several fold in some cases). This extraordinary rate of growth appears to be simply a reflection of the relatively recent development and launch of each organization's digital products (above and beyond their initial website launches). In contrast,

CIHM's digital product funding has remained relatively stable over the last three years. Since Historica was only recently established, there is no historical data available in its case.

We also asked all respondents to provide some indication of the extent to which they rely on internal versus external resources to develop and maintain their respective digital products,[31] where possible, focusing on (i) content management, (ii) technical requirements and (iii) digitization requirements. Given the differences in the organizations surveyed, there were also significant differences in the approaches adopted in this respect. The lone exception pertained to digital content management. All of the organizations relied almost entirely on internal resources to select, organize and manage the content contained in their digital products. On the other hand, technical expertise was only retained completely in-house for one of the seven survey respondents, while the others contracted out this requirement to one degree or another. One of the smaller organizations surveyed contracted this function out entirely. The same range of results were found with respect to the actual digitization process, with the smaller players contracting most if not all of this function out to a third party. Overall, and not surprisingly, the larger the organization, the more likely all responsibilities for the development and maintenance of digital products were found to be retained in-house.

As with the budget level differences across the surveyed organizations, the number of full-time-equivalent (FTE) employees varies widely. For all survey respondents combined, there are approximately 254 internal FTE employees dedicated to the development and maintenance of digital products, either directly or indirectly.[32]

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31 "In-house" resources are meant to include full-time as well as contract staff internal to the organization and dedicated to digital product activities. External resources refer to aspects of the project work that are out-sourced to third parties.

32 Note that, for their FTE employees estimates, some respondents included employees that are both directly and indirectly involved in the development and maintenance of digital products; however, their digital product budget estimates only covered employees directly involved with digital product projects and related activities. Note also that the NFB's digital

This amounts to roughly 36 FTE employees per organization. However, given the size of the CBC relative to the other organizations, the average is skewed upwards substantially. For instance, the other organizations have between 5 and 30 FTE employees assigned to digital products. The average, excluding the CBC, drops to between 15 and 20 FTE employees. Table 2.4 provides a summary of the number of FTE employees dedicated to digital products, including and excluding the CBC.

Table 2.4
Year-end 2001 Digital Product Budgets

Full-time Equivalent (FTE) employees	*Distribution (inc. CBC)*	*Distribution (Exc. CBC)*
Under 10 FTE employees	1 of 7	1 of 6
Between 11 and 20 FTE employees	3 of 7	3 of 6
Between 21 and 30 FTE employees	2 of 7	2 of 6
Over 30 FTE employees	1 of 7	--

All of the survey respondents, with the exception of the CBC, were able to provide a breakdown of internal FTE employees dedicated to content digitization. In total these six organizations have roughly 36 FTE employees dedicated to content digitization activities or approximately 6 FTE employees per organization. For the six organizations covered, therefore, roughly 34% of their digital product staff are dedicated to content digitization and related activities.

Each of the surveyed organizations was also asked to provide an estimate of the number of FTE employees or resources dedicated to copyright clearance related activities. Many indicated that only a minimal number of employees and/or budget resources were dedicated to copyright clearance at this time. This finding reflects of the nature of the content incorporated in many of the digital products produced to

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product FTE employee estimate included employees involved with digital film productions. For the purpose of this study, an adjustment was made to the NFB's estimates to exclude employees involved with ongoing film production activities.

date by the surveyed organizations. In contrast, the NLC devotes a significant number of FTE employees to copyright clearance issues, representing between 15% and 20% of its staff dedicated to digital products. In the case of the CIHM, while copyright clearance is an important issue which requires significant human and financial resources, a current project based on early government documents requires no copyright clearance. The CBC was unable to specifically identify resources dedicated to copyright clearance matters.

Lastly, with respect to resources dedicated to the marketing and promotion of digital products, the respondents typically indicated that a very small percentage of their overall digital product budgets were set aside for this purpose. For those who could provide a percentage, it generally fell in the 1% to 3% range. The CBC claimed that it devoted a somewhat greater share of its budget to marketing and promotion, but it was unable to separate marketing and promotion expenditures relating to its digital products from its other radio and television activities.

2.4 Funding and Revenue Sources

The organizations surveyed indicated that they rely on a number of alternative funding sources. Table 2.5 lists the reported funding sources ranked according to the frequency cited (i.e., a maximum of seven).

Table 2.5
Funding and Revenue Sources

Source	*Frequency Cited*
1. Federal government - operations funding	6
2. Partnership arrangements/cost sharing	6
3. Federal government - project funding	5
4. Corporate/Private Sponsors	3
5. Licence revenues	3
6. Product sales revenue (e.g., CD-ROMs)	3
7. Access/subscription charge revenues	2
8. Provincial government funding	1

While eight alternative sources of funding are listed in the table above, the primary source of digital product funding comes from the federal government, either through operations funding and/or project funding (i.e., through Canadian Heritage or Industry Canada funding programs). As expected, federal funding is the primary source of funds for the federal agencies and crown corporations surveyed for this study. There are, however, two limited exceptions. While Historica depends on federal funding (primarily for its online *Canadian Encyclopedia* product), it does so to a far lesser degree than federal agencies and crown corporations. Similarly, CIHM also relies on the federal government as a secondary rather than primary source of funding (e.g., through project-specific grants funded by Canadian Heritage and Young Canada Works). CIHM also relies to a very limited extent on provincial government funding (i.e., through the Summer Career Placement program).

The second most frequently noted source of funding or cost sharing is through partnerships with other organizations or private corporations.[33] Six of the seven respondents reported that they have or currently engage in partnership arrangements to develop digital products. It appears that funding and/or cost savings obtained through this avenue can be significant. However, only a few of the survey respondents provided estimates of the actual level of funding or cost savings obtained through such arrangements. Examples of these arrangements are provided further below.

Only one of the federal agencies and crown corporations indicated that they obtain funding from corporate sponsors or private donors. In contrast, both CIHM and Historica rely considerably on funding from such sources.

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[33] Defined to include "in-kind" contributions from other entities.

In terms of digital product revenues, it appears that while some of the organizations have one or more revenue sources, this is the exception rather than the norm. Moreover, the revenues generated appear to be modest to date. For instance, several organizations such as the NAC, CMCC and Historica market CD-ROMs. However, the survey respondents did not provide any indication as to whether such activities, on a relatively limited scale involved, necessarily cover the costs of the production and distribution of the CD-ROM-based digital products.

Only two organizations have implemented access charges for their digital products. These include the CBC and CIHM. The CBC charges users (primarily universities) for access to its *Universia* radio-program database. However, this initiative is very limited in scope relative to the CBC's overall online content and services. As noted in section 2.2.6, CIHM's access charge approach is built upon its existing microfiche sales model, and provides an important source of revenue for the organization.

The only other organization with plans to introduce usage charges in the near future is the NFB. Once the NFB's current *CinéRoute* trial is successfully completed, it intends to launch a micro-payment system for usage of films in the *CinéRoute* library. Canadian schools and universities are the primary intended users for the service.

Finally, while some organizations are considering other sources of digital content licensing opportunities (i.e., primarily the not-for-profit rather than federal government related organizations), this approach is still in the very early stages of development. Consequently, there have been no significant revenues generated through this avenue to date.

A noted above, most of the organizations are actively pursuing partnership arrangements as a means to help offset digital product funding requirements. The

survey respondents noted numerous examples of these arrangements. For example, the NLC also partnered with the Canadian Olympic Association, Canadian Press and Canadian Heritage to develop the *Canadian Olympians* website.[34] For this product, the Canadian Press provided digitization and image metadata generation services. Similarly, the NLC partnered with numerous cultural institutions to develop the *Images Canada* website.[35] In this case, the partners supplied images for the website.

The NAC has partnered with Canada Post to develop its virtual *Postal Archives* website.[36] Canada Post provided significant funding for the development of this digital product. The NAC also partnered with the Millennium Bureau for the development of its *MacKenzie King* website (the first in a series of websites on Canadian Prime Ministers). In this case, the Millennium Bureau funded well over half of the website's development costs. The NAC has also partnered with Industry Canada and the NLC on other website features.

The CMCC also indicated that it has entered in several collaborative projects involving shared digital product development costs. These include joint projects with other museums, partly funded through Canadian Heritage's *Virtual Museum of Canada* initiative, other federal government departments and agencies, as well as private foundations. The CMCC has also partnered with other organizations, in order to gain access to content for its *Virtual Museum of New France* website project.

The NFB has worked with several research centres and private corporations to conduct joint research and testing aimed at enhancing the quality and the delivery of streaming audiovisual content.

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34 See: http://www.nlc-bnc.ca/2/15/index-e.html.
35 See: http://www.imagescanada.ca/index-e.html.

In a similar, manner, CIHM has received substantial financial support through "in-kind" support in the form of office space and technical support (including Internet access and direct catalogue access). In addition, CIHM has undertaken joint digital projects with the NLC, Hudson's Bay Company and the Champlain Society.

Overall, partnership arrangements or joint ventures provide a means for government agencies, crown corporations and not-for-profit organizations to help offset their digital product development costs, gain access to content, and potentially expand the scale and scope of digital products that the organizations would otherwise develop within their existing program budgets. However, it appears that in many cases the additional funding is obtained through alternative federal government department operations budgets and funding programs. Consequently, partnering does not necessarily reduce reliance on federal government funding.

2.5 Key Current Challenges

Each of the survey respondents was asked to identify the top three challenges that they have faced to date in developing and maintaining their respective digital products. Generally, several common challenges were noted by many of the organizations although, given the differences in size and mandate, there were also several unique issues raised as well.

The most frequently noted common challenges are as follows:

i) funding,
ii) building capacity (e.g., developing necessary in-house expertise and technical infrastructure),
iii) managing standards,

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[20] See: http://www.archives.ca/08/0806_e.html.

iv) managing copyright clearance, and

v) meeting the needs of target audiences.

Not surprisingly, funding was the most frequently mentioned challenge faced by the surveyed organizations. It was noted that achieving commitment to the development of digital products within the organization was a key concern, which included sustained funding, staffing and supporting organizational structures. As well, it was noted that uncertainty as to the availability of funding over the intermediate to longer term complicates planning for and the prioritization of the selection of projects or collections for digital conversion.

The second item noted, "building capacity", is closely related to the first. Ultimately sustained and predictable funding is necessary to allow all organizations to develop the necessary in-house staff expertise (including recruitment and training), acquire essential technical infrastructure and equipment, implement appropriate standards, best practices and procedures.

As noted, dealing with multiple and often changing database standards, technologies and file formats was another frequently mentioned challenge. In this respect, it was also noted in a decentralized development environment, the maintenance and enforcement of consistent standards is an ongoing struggle. As well, it was noted that when standards change, the costs to upgrade to the new standard could be massive both in terms of employees and technology to do real-time transfers.

Dealing with copyright clearance matters was also frequently noted. Issues noted in this regard included challenges relating to the difficulties in identifying copyright owners as well as the cost of purchasing the necessary rights, which can sometimes be prohibitive.

Lastly several organizations noted that they face considerable challenges in terms of fully understanding and meeting the needs of their target audiences. This applies not only to the nature of the content involved, but also the quality and ease of use of the digital product from the user's perspective.

As mentioned, many of the surveyed organizations mentioned challenges that were unique to their respective circumstances. For instance, the availability of broadband access is a challenge that is of immediate concern to the NFB given the nature of its digital products (e.g., *CinéRoute*). Historica also pointed to the considerable challenges it has faced in terms of providing online access to the *Canadian Encyclopedia* given that the product had traditionally been marketed in hardcopy and CD-ROM since its inception.

2.6 Forward Looking Plans and Funding Requirements

2.6.1 Demand

While some of the respondent organizations have conducted recent surveys of their users to obtain feedback on their current digital products, few, if any, have conducted comprehensive or rigorous analyses of the potential demand for new and expanded digital products among specific target user groups.

CIHM is an exception in this respect. It has an ongoing practice of relying on an advisory committee (with representatives from the scholarly research and library communities) in order to prioritize requests and develop plans for future projects. In this way, CIHM has established a relatively sound basis for ensuring that there is clear demand for the digital products it develops and, for those that are developed, they are satisfactorily meeting the needs of their target audience. CIHM's approach is likely related to the fact that it relies on a subscription-based model to help fund its operations.

Other organizations have conducted user surveys as well. The NAC has also conducted several online consultations to gauge interest in potential projects. Two consultations have been conducted early this year as part of its Accessible Archives program and in consultation with the Canadian Genealogical Centre. As well, the NLC has also recently undertaken activities to assess the needs of its primary user groups, including the use of online surveys, focus groups and one-on-one interviews.

As evidence of growing demand for their respective digital products, most of the organizations have also pointed to recent online traffic data. They noted that hits or visits to their respective websites is growing and, indeed, at very high levels. For instance, as summarized in Table 2.1, while Historica launched the online version of the *Canadian Encyclopedia* just over three months ago, it already attracts some 100,000 unique visitors per month. The NLC indicated that it gets some 17 million hits per month on its website. The CBC and SRC websites combined generate even far greater traffic volumes at some 15 million hits per week.

The NLC also provided an illustrative example of the tremendous potential for online digital products. The NLC noted that it currently averages roughly 29,000 online download requests per month on its *Virtual Gramophone* website. In contrast, on-site users make only 300 requests per year for the same collection sound recordings, a usage difference of over 1000-fold.

Lastly, one respondent also noted that the need to preserve archived material is also an important consideration driving the need for continued if not accelerated digitization efforts in the coming years.

2.6.2 *Future Development Requirements*

All of the organizations responding to the survey indicated that they have potentially substantial and, in many cases, "massive" digitization requirements ahead of them. For instance, the NLC, NAC, CMCC and CBC all fall into this latter category.

The NLC has made considerable progress to date but, even still, it has barely scratched the surface in terms of the digitization of its entire set of holdings. However, as pointed out by the NLC, copyright issues preclude the digitization of the vast majority of its holdings and, moreover, there is no clear demand for the wholesale digitization of its vast collection of retrospective collections of published Canadiana. Nevertheless, the NLC believes that it could take 5 to 10 years of concentrated digitization to convert a substantial body of high interest, high use retrospective holdings. Because of evolving technologies, the NLC also believes that new opportunities for digital product provision will arise in the coming years.

The NAC is in a very similar situation. It too has only digitized a small fraction of its overall holdings. It noted that even if it were to increase its current annual digitization resources by 50%, it would take well over 30 years to complete the digitization of a significant portion of its collections.

As well, the CMCC estimated that the digital content currently available through its website only covers the "tip of the iceberg" at this point. It noted that we are only in the "pioneer phase of developing a meaningful online knowledge environment." More generally, the CMCC estimated that electronic images and digital records of 70% of the museum's collection are yet to be completed.[37] In addition, only 20% of the museum's artifact-related information is now available online. The CMCC hopes to double this over the next two years.

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[37] The CMCC also noted, however, that not all artifacts and specimens would necessarily be exhibited online in any case due to copyright restrictions and/or other reasons.

The CBC is still completing an inventory of its holdings across the country, consequently, the total scale of the task ahead of it is unknown.[38] While the CBC is currently developing a variety of new digital products, digitizing all of its archival holdings would be a massive undertaking.

While the NFB is yet to digitize a substantial part of its film library, it faces a more manageable task than the above-noted organizations. It still has some 6,000 films and 1,000 filmstrips along with other ancillary materials to be digitized. The NFB believes that this task can be accomplished over the next 3 to 4 years.

CIHM's current digitization projects are expected to be complete in over the course of the next two to three years. Regarding future projects, its mandate is quite open-ended in that there is a substantial amount of printed early Canadiana material still available for digitization. For example, CIHM noted that the 1.25 million images of the current government publications to be included in its *Canada in the Making* digital product represent only about 25% of those materials available. The potential exists to develop this collection further. Also, the bulk of CIHM's over 90,000 microfiche titles are yet to be digitized.[39]

Historica also has plans for new features for its digital products; however, it expects that these products will be based on newly created material rather than the digitization of existing material.

As summarized in Table 2.6 below, most of the organizations surveyed have potentially enormous outstanding digitization requirements.

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38 For example, French language holdings available in Montreal alone is estimated to amount to 150,000 hours of television programming and 180,000 hours of radio programming.

39 According to CIHM, this could be accomplished by itself or other parties, for instance, through the Canadian Local Histories Digital Project.

Table 2.6
Digitization of Overall Holdings Accomplished to Date

Organization	*Percent of Holdings Digitized to Date*
National Library	< 1%
National Archives	< 1%
Museum of Civilization	< 20 - 30%
CBC	minimal
NFB	< 40%
CIHM	< 25%
Historica	NA

While Table 2.6 provides only crude estimates, it should be recognized that these estimates do not take into account the feasibility and, more importantly, the user demand and business case for the digitization of any of these organizations' entire cultural collections.

Most of the surveyed organizations identified various enhancements to their existing digital products that are also considered priorities for the coming years. These include improvements to database search capabilities (including cross-database and cross-collection searches), tools to help users take maximum advantage of the available databases, quality improvements (e.g., in terms of streaming video and metadata information), implementation of a micro-payments system and the integration of an electronic rights database. Consequently, in addition to expanded content, the implementation of product enhancements will also drive funding requirements for the coming years.

2.6.3 Funding Requirements

Most of the surveyed organizations were unable to provide specific details of their digital product plans and priorities for the next few years. Consequently, few were able to provide estimates of future funding requirements or even an order of

magnitude estimate of their expected funding requirements relative to existing funding levels.

Only the NFB, CIHM and Historica provided some indication of funding requirements for the next two to three year periods. The NFB indicated that a doubling its current digital product budget would allow it to complete its current digitization plans over the course of the next three years. On the other hand, CIHM and Historica have suggested that they should be in position to complete their existing projects over the next couple of years as long as their existing funding levels are maintained. However, their longer-term funding requirements are unknown at this time.

With respect to the coming year, survey respondents indicated that they expect their funding requirements to be "partially met" in most cases or "reasonably well met" in the remaining cases. This suggests that, based on current expectations, funding levels for the coming year should be sufficient to allow at least some progress in meeting existing digital product development plans and priorities.

Future funding requirements could potentially be mitigated through the accumulation of in-house digitization expertise and infrastructure (i.e., the benefits of learning by doing) or efficiency improvements or cost savings brought about through the provision of online access to cultural content. However, in most cases, the survey respondents indicated that they do not anticipate any savings or efficiencies with respect to the ongoing maintenance and development of their respective digital products in the coming years. CIHM and Historica were exceptions in this regard. CIHM plans to move more of its ongoing product development work "in-house" which is expected to result in savings for the organization. Similarly, Historica is implementing database changes that are expected to simplify updates, reducing ongoing costs for the organization. The CBC noted that its online products have generated savings in terms of the number of staff

previously dealing with information requests as a result of the introduction of its online services.

On the other hand, it was also noted that user interest in online digital products has increased the number inquiries related to and requests for access to physical materials in some organizations' collections. This has increased the workload for the organizations' staff as well as pressure on operational budget requirements.

Some organizations also pointed out that there are potential savings for the users of their digital products. They noted that the provision of online access to their holdings simplifies access to and facilitates the use of their respective collections. However, any such savings are strictly external to organizations involved and, therefore, they would not have any impact on their future funding requirements.

2.6.4 Forward Looking Challenges

The survey respondents were asked to specify the top three challenges they expect to face in the coming years in terms of meeting their current digital product plans and priorities. In many respects, the challenges noted were not significantly different than those faced to date by the surveyed organizations.

The one common challenge that all respondents identified related to the availability of sustainable funding over the intermediate to long term years. This was the primary concern of almost all of the respondents. As one respondent noted, without assured future funding, it is simply not possible to develop and maintain a consistent, long-term digitization program.

A second common challenge identified by the respondents is related to the rapidly changing environment for digital products. Challenges generated by constantly changing technical standards and norms were most frequently noted in this regard.

Others noted challenges are generated by changing political priorities, potentially changing copyright regulations and ongoing changes in Internet technology, the latter of which could affect the shelf life of current digital products.

There were a number of other noted challenges relating to the future development of digital products that were typically unique to individual respondents; e.g., challenges with respect to:

i) engaging new audiences,
ii) developing a co-ordinated national effort (i.e., in the case of Canadian libraries),
iii) providing universal access to digital cultural content (e.g., in cases where access charges may apply for specific products), and
iv) gathering and managing the vast volume of materials and related information involved.

2.7 Summary and Analysis of Survey Results

As the preceding discussion demonstrates, the seven surveyed organizations have made great strides in terms of the digital products that they have developed to date. This is particularly impressive given that most of the organizations only launched their initial online digital products some five or six years ago. For CIHM and Historica, their online products have only been available one to two years.

While all of the organizations would have preferred to have had additional funds at their disposal for the development of digital products, it appears that almost all have managed adequately under the existing budget constraints. As noted, in Section 2.3, the vast majority of the surveyed organizations indicated that their existing budgets have allowed them to at least "partly" or "reasonably" meet their

digital product objectives to date. At the same time, and not surprisingly, funding has been the most common and typically the principal challenge facing all of the organizations (as discussed in Section 2.5). Existing budget levels have, nevertheless, allowed the surveyed organizations to make substantial progress to date given that they were all largely starting from scratch only a few years ago.

The information collected on alternative funding sources also clearly demonstrates that most of the surveyed organizations currently rely to a very large degree on federal government funding to advance and maintain their respective digital products. Federal government funding is relied on both directly, through operations funding and through program funding (e.g., Canadian Heritage and/or Industry Canada funding) and, indirectly, through partnering with other federal agencies or institutions.

While there were a number of other sources of funding identified -- e.g., private-sector partnerships, sponsorships, content licence revenues and/or access charges -- it appears that these sources of funds are relatively limited at this point in time (with the exception of the smaller, not-for-profit organizations, CIHM and Historica). Moreover, it would likely take some time to develop and expand the level of funding that could be generated from these alternative approaches and, in doing so, lessen reliance on government funding going forward. With the exception of CIHM, which has subscriber fee model in place, and the CBC and NFB, which are both effectively at the initial or experimental stage of adopting user pay approaches, none of the other organizations are in a position to implement user pay models.

The digitization of cultural content is still in the very early stages of development. All of the surveyed organizations have a very long way to go before they complete the digitization of their holdings. This is especially the case with the larger organizations such as the NLC and NAC that have enormous existing and constantly growing collections that could potentially be digitized. Indeed, for these

institutions, the best they may be able to achieve over the next several years is to provide online access to little more than the main "highlights" of their overall collections. The CBC is in a similar position given the enormity of its radio and television programming archives.

Unfortunately, most of the surveyed organizations were unable to provide a well-defined strategy and plan for its immediate-term and longer-term digitization requirements. Consequently, their anticipated future budget requirements were equally ill-defined. Only the smaller organizations, such as CIHM and Historica, set out reasonably well-specified plans, which in large part are built upon maintaining existing funding levels. As well, the NFB has well-defined plans to complete the digitization its entire film collection for conservation purposes and to make the collection available on a pay per use/subscription basis to schools. According the NFB, this should be achievable by roughly doubling current funding levels.

In Wall Communications' view, one echoed by several of the industry experts interviewed for this study, business plans for the development of new or expanded digital products should be first and foremost based on a rigorous analysis and forecast of user demand. Any new or expanded products that are to be developed must clearly meet user needs in a user-friendly format. There should also be a complementary strategy to attract and grow an audience for the product, and raise the "visibility" of the product among potential users (i.e., product "branding" in the commercial product sense).

However, it is not clear from the survey responses whether there is the necessary comprehensive and rigorous user demand analysis being conducted in support of digital product development to date. Indeed, in some cases, it is not clear whether adequate user feedback is being sought and usage data tracked and analysed in order to determine the usefulness and success of existing online digital products. Of course, difficulties exist in this respect, as one digitization expert interviewed for this

study noted, since there are no established metrics to assess whether the existing digital products have been a success. For instance, while traffic statistics provide a useful picture of the trends in hits or visits to a specific website, further analysis with target audience groups is necessary to determine overall satisfaction with the available content, its usefulness and ease of use. In any case, traffic data relating to existing online digital products says little about the likely level of demand for expanded versions of the products or new digital products.

We recognize that in the initial stages of the development of online digital cultural products, as is the case for online commercial products and services, the process is largely one of experimentation and learning by doing. However, with several years of experience with online digital products now accumulated, a sustainable longer-term digital cultural content strategy should increasingly be geared to meeting well-defined user needs in an effective and efficient manner. As one digitization expert interviewed for the study aptly pointed out, it is not the quantity of content available in a digital product that is of key importance, but the quality and usefulness of the content from the user's perspective.

Most of the surveyed organizations also noted challenges they face in terms of changing standards, both technological and environmental. The current highly dynamic state of digital product technology and, more generally, the rapidly evolving nature of the Internet complicate planning for and the implementation of digital product projects. Moreover, changes in technology raise the risk that earlier digital products must be updated to prolong their shelf life. While many of the respondents noted this concern, none could predict whether changing standards would necessarily have a significant impact on future budget requirements. The impact on costs resulting from changing technical standards is largely unknown at this time.

In Wall Communications' view, based on the information provided by the survey respondents, a continuation of existing funding levels -- derived from all existing sources -- in the near to intermediate term would allow significant further progress to be achieved in terms of the scale, depth and features of each organization's digital products, effectively building on the substantial achievements made to date. While greater funding levels would allow progress to be accelerated, increased funding should be accompanied by increased efforts to rigorously assess user needs as well as promote both existing and new digital products.

As noted, most of the surveyed organizations rely heavily on federal government funding for the development and maintenance of digital products. In the near and medium-term, it would be difficult to replace government funding with alternative sources of funding or revenues. Developing significant new sources of private sector sponsorship funding can be very challenging and, moreover, sustaining such funding can be even more difficult still. Similarly, developing meaningful revenue streams (e.g., through access charges) can also be a significant challenge in the near and medium-term, especially for government institutions that have had a long history of and, indeed, mandate to provide access to their collections free of charge to the public. Consequently, if government funding were removed or cut back significantly in the near term to medium-term, it would be unlikely that surveyed organizations would be in a position to readily offset the loss in funding. Moreover, funding reductions could jeopardize an organization's ability to sustain existing digital products as well as retain existing in-house expertise and technical capabilities necessary to develop new and expanded digital products in the future.

The next section examines in more detail the issue of alternative business models and their applicability to digital products developed by federal government heritage institutions and other not-for-profit heritage institutions.

3.0 Alternative Digital Cultural Content Business Models

3.1 Current Public and Private Sector Business Models

As discussed in Section 2.4, the primary sources of funding for the surveyed cultural and heritage organizations' digital products include the following:

i) federal government funding - operations and/or project funding,
ii) partnership arrangements - cost sharing and/or content access,
iii) corporate/private sponsorship funding,
iv) product sales and licence fees,
v) access/subscription fees, and/or
vi) provincial government funding.

It should be reiterated that the each of the surveyed organizations has relied on a somewhat different funding approach or business model for their respective digital product programs to date and each has relied on a different mix of funding sources. The business models adopted vary considerably given the differences in mandate, cultural holdings, primary clients and size, among other factors, between the seven organizations. Nevertheless, in most cases, the primary source of funding for the surveyed organizations comes either directly or indirectly from. Only two of the seven organizations have implemented user fees (i.e., the CBC and CIHM).

There are also a variety of business models that have been adopted by commercial, private sector online digital content service providers or aggregators. Commercial online digital products, like their public and not-for-profit sector counterparts, are also still very much in the early stages of development. In large part, the business models adopted have been experimental in nature. Some have failed outright in certain circumstances, while the longer-term sustainability of others is yet to be

proven. Indeed, very few online content service providers appear to be operating on any more than a marginally profitable basis at best.

Bearing this in mind, there are a variety of business models for commercial online digital content that can be considered as potential options for digital cultural content service providers as well. These approaches include, individually or in combination, the following elements:

i) advertizing and/or sponsorships revenues,
ii) user fees (e.g., subscription-based or transactions-based usage charges),
iii) product/services sales (e.g., sales revenues from related products and/or services),
iv) cross-promotion value (e.g., of traditional media and/or commercial operations), and/or
v) digital content licensing.

This list is not intended to be necessarily exhaustive. New online business model approaches are being developed and tested constantly. Moreover, as can be seen, these approaches are not unique to commercial online service providers. There is considerable overlap between this list and the approaches currently followed by the organizations surveyed for this study.

In the following section, we consider the potential feasibility of these alternative approaches for Canadian cultural and heritage institutions such as those surveyed for this study.

3.2 Feasibility of Alternative Approaches for Cultural and Heritage Institutions

Reliance on advertizing revenues is a common business model approach for commercial online service providers. However, online service providers, in aggregate, are yet to generate a significant amount of advertizing revenues, especially when compared to conventional media.[40] As well, only a relatively small percentage of online content service providers account for the bulk of the advertizing revenues (e.g., portal websites). Consequently, without very significant traffic volumes and strong brand recognition, the prospect of generating sufficient advertizing revenues to sustain the development of online digital content is very limited.

Indeed, one industry expert interviewed for this study questioned whether an advertizing based business model would prove to be sustainable over the next few years for most forms of online content. He noted that click-through rates for online ads have dropped off significantly over the course of the last couple of years and that the popularity of software designed to suppress ads has grown at the same time.

In any case, given the nature of the cultural and heritage organizations considered in this study, it is debatable whether an advertizing-based approach to funding would be a viable revenue-generation option. Including banner ads or other forms of advertizing on the surveyed organizations' websites would be largely, if not, entirely inappropriate. Indeed, including advertising on government agency websites contravenes current government communications policy and guidelines. The lone exception among the group of surveyed organizations is the CBC, which is permitted to and includes advertizing on special online features produced for and

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[40] According to the Internet Advertizing Bureau of Canada (September 2001), online advertising was in the order of $110 million in Canada in 2000, although it is growing quickly on a year-over-year basis.
See: http://www.iabcanada.com/news/october_2001.shtml.

linked to its main website (e.g., its 2002 Winter Olympics and 2002 FIFA World Cup Soccer website features).

Sponsorship funding amounts to an alternative form of advertizing. Under this approach, funding received from corporate or private sponsors is typically acknowledged on the organization's website, without reliance on any form of traditional online advertizing or promotions. As discussed above, three of the seven organizations rely on sponsorship funding (e.g., the NLC, CIHM and Historica). However, maintaining private-sector sponsorship funding over the long term can be challenging, and the level of funding can fluctuate or even disappear entirely depending on changing corporate priorities or economic conditions. Just the same, sponsorship funding provides a viable means to supplement funding for digital cultural products and promote their visibility.

User pay models have generally not been widely adopted by public or private online service providers at this point in time. While subscription and transaction fee (or micro-payment) based models have been growing in popularity and hold promise, they still remain limited in terms of user acceptance. The general public still tends to expect to get free access to most content available on the Internet.

Nevertheless, where compelling online content is made available and a well-defined client group for that content exists, a user pay model can be an effective and potentially sustainable business model. Industry experts interviewed for this study stressed that for the user pay model to be successful, the content provided must be unique and targeted at a specific market segment or audience. Following this approach, for instance, while some digital content could be provided for free to attract interest and traffic to the website, access to core content could be provided to users on a pay-per-use or subscription basis.

As we have already noted, CIHM has adopted a subscription-based approach for its *ECO* database and the CBC has a similar model in place for its *Universia* French language radio program archive. In both cases, the digital products serve well-defined user groups in the educational sector. Although, it should be reiterated that under CIHM's subscription fee model, usage charges apply to intermediaries, such as libraries, rather than end users.[41] The NFB's *CinéRoute* project is also targeted at a well-defined client group and, once commercially launched, will be based on a micro-payment model and a rights management system.

These examples demonstrate that a user fee approach can be an effective and potentially sustainable business model approach that could provide a significant ongoing source of revenues, covering at least in part ongoing digital product development and maintenance costs. However, the approach may not be feasible in all cases, given that user fees may conflict with the mandates for some cultural and heritage institutions. This would be the case for institutions such as the NLC and NAC that are mandated to provide universal access to their collections, generally free of charge.

In this respect, several digitization experts interviewed for this study questioned the appropriateness of cultural and heritage institutions charging for access to their collections, especially given that they were assembled and digitized using tax revenues. It was also noted that, in some cases, federal government funding programs largely preclude the use of access charges as a precondition for funding.[42]

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41 CIHM's subscription-based funding model could also be viewed as a digital licensing funding model, which is discussed below, since CIHM charges access fees to intermediaries rather than end-users. However, since libraries and similar institutions are not typically involved with digital content aggregation, packaging and marketing, we have classified CIHM's funding model under the user fee approach since, in effect, libraries simply purchase access to CIHM's content on behalf of their clients, as in the past with respect to similar content provided by CIHM on microfiche.

42 In this regard, CIHM has indicated that it has recently transferred a portion of its restricted-access ECO records to its open-access database. The portion transferred corresponds to the percentage of funding it has received to from the federal government for the ECO project. Moreover, starting in

While online product and/or services sales can be a viable business model for private sector firms (e.g., for software, electronic books, or music), this approach is of limited value for the type of organizations examined in this study. For instance, selling digital cultural content packaged in CD-ROM or DVD-ROM format, based on the organization's online digital products, could help fund the development costs of the digital product. Online ROM or DVD-ROM sales may be more efficient than relying on traditional distribution channels. However, production and manufacturing costs of the physical digital product would have to be taken into account. In addition, there are costs associated with setting up the infrastructure to handle and process online orders. If sales volumes are limited, the net revenues involved, if any, would likely do little to sustain the ongoing development and maintenance of digital products.

One of the industry experts interviewed for this study questioned the future viability of CD-ROM and DVD-ROM based digital cultural products. With broadband access becoming more widely available and affordable, online access will increasingly become the preferred means of access to digital content. It remains to be seen whether Historica, for instance, will be able to maintain sales of the CD-ROM versions of the *Canadian Encyclopedia* (even at sharply reduced rates) when a more up to date version of the encyclopedia is available online free of charge.

In a related sense, it was also noted by some of the survey respondents and interviewees that online digital products have had the effect of increasing interest in their respective organization's collections. The greater interest level has in turn generated increased demand for information about and access to the organization's holdings. User charges could be instituted for services provided to such users of the

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July 2002, CIHM will be offering free access to the full ECO database to all Canadian elementary and high schools.

online digital products. But, no clear proposals were suggested in this respect. Indeed, it was recognized that any such services would largely be performed on a cost recovery basis and, therefore, would provide little, if any, funding for the digital products themselves.

Many organizations and firms often create websites largely to promote support product and service sales. The online digital products developed by the organizations surveyed for this study serve a similar role for those with product and service revenue streams. The CBC's website, for instance, in large part serves to cross promote its traditional radio and television broadcast media. It enhances the value of existing programming and may help increase the number of viewers of its current programming. To the extent this occurs, advertizing revenues from its television broadcasting services could be increased. Similarly, the CMCC's website and digital products serve to promote its museums, potentially boosting attendance and, as a result, gate revenues. Measuring cross-promotional value is difficult, however, and none of the survey respondents indicated that they had attempted to do so.

Lastly, licensing digital content to third parties provides a potentially attractive business model that may provide a means to sustain the continued development, enhancement and maintenance of digital cultural content. As one industry expert pointed out that there are two fundamental approaches that can be adopted with respect to creation of online digital content. The organization can produce, package and operate its own website (much like a specialty television service provider). Alternatively, the organization can create the content (more like a television program) and licence the content to a third party who would then be responsible for packaging and website operation.

Licensing digital content is only at the initial stages of development at this point in time, and it is yet to be determined how successful or how quickly it can be

developed. Interestingly, the OnDisC Alliance is currently developing an e-commerce model for digital media content tailored for the educational sector.[43] OnDisC is an alliance of digital content owners and users who are now developing and testing e--commerce models intended to enable users to easily access a wide range of educational digital content and, at the same time, enable digital content producers to better access their markets. OnDisC plans to provide end-to-end infrastructure for the distribution of digital learning materials, integrating portions from existing products and providing additional content to encourage widespread utilization. OnDisC is also developing a mechanism to clear copyrighted third-party materials efficiently for inclusion in digital media applications. Consequently, organizations such as those surveyed for this study could potentially licence digital cultural or heritage content from their collections for use by OnDisC or other similar emerging educational and cultural content aggregators.

Based on the survey responses, most of the cultural or heritage organizations examined in this study indicated that they have been looking at several alternative funding or business models options going forward. The alternative approaches being considered vary from organization to organization. The two most commonly noted are user pay models and licensing of digital content. Others, such as CIHM that already has a subscription-based model in place, are considering new means of increasing subscriber levels. Others are considering means of increasing physical product sales (e.g., CD-ROMs). However, some have suggested that revenue generation is simply not a priority.

There is interest in moving towards business models more typically found in the provision of online commercial digital content. However, since there is no proven sustainable business model that will necessarily work for all cultural and heritage

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[43] OnDisC stands for Online Distributed Content. The Alliance is a consortium of 18 content owners, private sector and institutional partners. See: http://www.ondisc.ca/.

institutions, any movements that do take place would likely be gradual (all else being equal).

3.3 Implications for Cultural and Heritage Institutions Looking Forward

Like other private and public sector online content providers, the seven cultural and heritage organizations examined in this study are in the early stages of the development of digital cultural content. In many cases, there is an enormous volume of materials that could yet be digitized. Consequently, current funding levels for digital product development and maintenance will need to be maintained, at a minimum, if continued progress is to be achieved.

To date, the organizations have relied heavily on government funding in order to develop their respective digital products. As discussed in Section 2.7, it would be very difficult for the organizations to quickly adjust to a significant reduction in government funding or, even more so, to the complete elimination of government funding. A variety of alternative funding models are being considered, but significant changes in business model approaches would take time to implement and, more importantly, there would be no guarantee that any new approaches adopted would be successful.

It is important to recognize, as some interviewees pointed out, that federal government funding provided to date has done more than simply help cover the costs of specific digital cultural content projects. It has allowed the organizations to build capacity, technical infrastructure and expertise to continue the development of similar digital products in the future. The nature of the operations of the surveyed organizations is rapidly changing as a result of technological developments, as is the case in virtually all sectors of the economy today. Ongoing digitization requirements and the need to increasingly deal with born-digital cultural products will transform current digital product project activities into standard day-to-day

operations. This is already the case with many of the organizations (e.g., the CBC and NFB). In the meantime, the digitization investments made to date under the current funding programs should provide cultural and heritage organizations with greater capacity to carry on further digital product projects in a more effective and efficient manner.

In the near term, cultural and heritage institutions will continue to be dependent on the government funding in order to continue the development of digital cultural products and maintain the products they have developed to date. Ongoing government funding or, especially, increased levels of government funding, should be dependent upon the provision of clear evidence of user demand for any newly proposed digital cultural product projects. Of course, we recognize that this factor would not form the sole basis for any assessment for any such funding requests or digital content funding programs.

Based on the input from the surveyed organizations and the views of digitization and industry experts, there are a several alternative business models that could be adopted over the medium to longer term that would reduce and possibly even eliminate (in some cases) the need for ongoing government funding of digital cultural content. While no single model would necessarily be successful in all cases, there are several promising approaches that, in combination, could provide cultural and heritage institutions with a potentially sustainable model for funding digital content. These include:

i) partnerships aimed at sharing costs and/or content,
ii) corporate and/or private sector sponsorships,
iii) user fees,
iv) third party licensing fees, and
v) product sales.

To one degree or another, most of the surveyed organizations have already adopted one or more of these funding approaches. It remains to be seen whether the revenues derived through these sources can be increased sufficiently to allow for a significant reduction in the reliance on government funding.

The user pay and content licensing models offer the greatest promise as long term sustainable content business models. However, as already discussed, it is questionable as to whether a user pay model is appropriate in the case of certain institutions such as the NLC and NAC. It appears that charging the public for access to either of these two institution's general interest collections would be contrary to their respective mandates. However, it may be appropriate to charge for access to digital content developed for a specific niche market, such as genealogists. Licensing digital cultural content to third party content aggregators could raise similar concerns, to the extent that digital cultural content previously provided free of charge by an institution such as the NLC or the NAC was shifted to a third-party content provider on a user pay basis.

It is important to note, however, the user pay and content licensing models could be effective and sustainable business models for other cultural or heritage institutions such as the CBC and NFB and perhaps to a lesser extent in the cases of the CMCC, CIHM and Historica. At the same time, we would not recommend that the government necessarily favour these approaches over others. Each organization is unique and, consequently, no single approach could be expected to suit all. Just as the current funding approaches differ significantly from one organization to another, likely so will the business model approaches adopted by cultural and heritage organizations in the coming years.

For cultural and heritage institutions to successfully deliver online digital cultural content in the future, with significantly less reliance on federal government funding, they would need to adopt a more commercial approach to creating digital products

and marketing those products. This implies that these organizations may need to re-focus their digital products to satisfy more narrowly targeted market segments or user groups. Consequently, to the extent that government funding is scaled back, government's ability to influence the type of digital cultural content that is made available to Canadians would ultimately diminish. Whether or not and under what circumstances this trade-off would be acceptable to the government would require careful consideration.

Appendix 1:
Digital Cultural Content Questionnaire

Introduction

This questionnaire has been prepared by Wall Communications as part of a study, being undertaken for Canadian Heritage, on alternative business models for the sustainable development of digital cultural content. As input to the study, the purpose of this questionnaire is to gather information from organizations such as your own on the nature of and resources currently used to digitize content and in the creation of digital products. The questionnaire is also intended to gather information on digital product development plans and priorities for the next few years along with the associated funding requirements. Finally, the questionnaire seeks your views and comments on alternative funding options or revenue generation possibilities from digital products in the coming years.

Note that individual organization-specific responses to this survey, involving quantitative information (such as future budget requirements), will be kept STRICTLY CONFIDENTIAL. Any qualitative comments provided by individual respondents which are subsequently noted in Wall Communications' report to Canadian Heritage will NOT identify the source.

For the purpose of this questionnaire, the following definitions apply:

- *Digitization*: refers to the conversion of text, sound, images, video and other content into a common digitized format.

- *Digital Product or Content*: refers to a common grouping of digitized information, developed and/or acquired for a specific purpose with, for instance, access to this information provided over the Internet and/or on CD/DVD-ROM. The focus of this questionnaire is on digital products or content intended for public presentation purposes rather than preservation purposes (i.e., strictly archival purposes).

The questions that follow are divided into three sections: 1) the status of current digital products, 2) budget, resource and funding issues, and 3) future plans, challenges and funding requirements.

Your prompt response to this questionnaire would be greatly appreciated before or no later than **Friday, January 18, 2002**. We recognize that the questionnaire is lengthy, but your full participation is essential to producing a worthwhile report.

If you do not understand what is being asked in any of the questions, PLEASE contact: Bernie Lefebvre (Tel: 613-235-1624; email: lefebvre@rogers.com).

NOTE: Please insert your responses to the following questions directly in this document, using as much space as you need for your answers.

1.0 Status of Current Digital Products

1.1 Identify and briefly describe your organization's current digital products listed, as may be appropriate, in order of their significance (providing website address where relevant).

1.2 Describe the key objectives underlying the development of your organization's digital products.

1.3 Identify the key features of your organization's digital products, including the nature of each of the associated digital content elements (text, audio, photographs, video, images, broadcasts, search capabilities, etc.).

1.4 Identify the medium/media used to deliver or provide end-users assess to the digital products (e.g., Internet, CD-ROM, DVD-ROM or other).

1.5 Identify the year when your organization first made digital products available to end-users.

Year:

1.6 Provide an indication of the annual growth rate in size/scope of the digital products since they were first made available (e.g., in terms of data volume in megabytes, web pages, documents, files, etc., as may be relevant).

1.7 Identify any key features or capabilities added to the digital products since it was first made available.

1.8 List the users or client groups of your organization's digital products (e.g., general public, students/teachers, commercial clients, government, etc.) and, if there are multiple user groups, provide an estimate of their respective shares relative to total usage for each digital product, as may be appropriate.

1.9 *Based on your experience to date, how long does your organization typically feature a specific digital product before online assess is discontinued or the product is otherwise no longer readily made available to the public (i.e., what is the typical "shelf-life" in months or years of your organization's digital products)?*

2.0 Budget, Resources and Funding

2.1 *Does your organization's budgeting process specifically identify and estimate the requirements for the development and ongoing maintenance of digital products? (Yes/No)*

2.2 *Have financial resources been sufficient to meet the requirements for the development and ongoing maintenance of digital products to date?*

a) *requirements hardly met at all;*
b) *requirements met in part;*
c) *requirements met reasonably well;*
d) *requirements fully met;*

2.3 *Provide an estimate of your organization's budget for the development and ongoing maintenance of digital products* for the most recent actual year available (year-end in 2001).

2.4 *What percentage of your organization's overall operating budget is dedicated to the development and ongoing maintenance of digital products?*

2.5 *Indicate whether the technical, content management and digitization expertise associated with your organization's digital products is maintained internal to your organization or contracted out to an external party and, if a combination of the two, provide the relative shares of each.*

2.6 *Provide an estimate of the number of full-time equivalent internal employees dedicated to the development and ongoing maintenance of your organization's digital products.*

2.7 *If applicable, provide an estimate of the share of your organization's digital product budget that is used to pay for external expertise relating to management, maintenance and ongoing development of your organization's digital products.* Separately identify, if applicable, the portion of any such payments that are solely dedicated to the digitization of content.

2.8 *Identify the percentage of your organization's digital product budget and/or full-time equivalent internal employees that are dedicated to the digitization of content.*

2.9 *Identify the percentage of your organization's digital product budget and/or full-time equivalent internal employees that are dedicated to copyright clearance matters.*

2.10 *Identify the percentage of your organization's digital product budget that is dedicated to marketing and promotion. Also provide a brief explanation of the nature of any such marketing and promotional activities.*

2.11 *To the extent possible, provide estimates of the historical annual expenditures on your organization's digital products over the last 3 years (i.e., 1999, 2000 and 2001).*

2.12 *Provide a list of all sources of funds (e.g., federal government, provincial government and/or private sector sponsorships) or revenues (e.g., usage charge, product sales and/or licensing revenues) for your organization's digital products, specifying the relative contributions of each source.*

2.13 *Briefly describe the nature of any digital content licensing agreements your organization current has in place.*

2.14 *List and briefly describe the nature of any partnership arrangements your organization has in place involving the shared development and/or costs of developing and enhancing your organization's digital products.*

2.15 List and briefly describe the top three challenges your organization has faced to date in terms of developing and maintaining your current range of digital products.

3.0 Future Plans, Challenges and Funding Requirements

3.1 Describe the extent to which there is current demand for expanded content or expanded capabilities with respect to your organization's digital products, indicating how demand is measured or monitored.

3.2 Relative to the amount of digital content currently incorporated in your organization's digital products, describe the scale and scope of any additional content that is yet to be incorporated in the products (e.g., the percentage of existing content yet to be digitized).

3.3 Aside from the digitization of content, describe any other key features or capabilities that are yet to be incorporated in your organization's digital products.

3.4 Provide an estimate of the time frame and funding (i.e., above and beyond any funding for the purposes of ongoing digital product management and maintenance) necessary to complete the content digitization and product enhancements noted in the previous two questions (as may be applicable).

3.5 Based on currently available budget forecasts for the coming year, are your digitization funding requirements for 2002:

- *a) not likely to be met at all;*
- *b) should be partially met;*
- *c) should be reasonably well-met;*
- *d) should be fully met;*

3.6 List and briefly describe any cost savings that your organization expects to achieve with respect to the ongoing maintenance of its current digital products and/or in the development of new digital products in the next few years.

3.7 List and briefly describe the top three challenges your organization faces in terms of maintaining as well as expanding the range, scale and capabilities of the current line of digital products over the course of the next few years.

3.8 Briefly describe any initiatives your organization has undertaken or may be currently considering that are aimed at generating revenues from end-users from either existing or planned digital products (including, for example, licensing of digital content to third parties or intermediaries).

3.9 Do you perceive other opportunities to generate revenues from your digital products and, if so, please identify each opportunity and potential for revenue generation?